

# Patient Safety Alert

## Guidance to Reduce the Risk of Retained Surgical Items

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### Introduction

In 2023, the Academic Medical Center Patient Safety Organization (AMC PSO) convened a Task Force to discuss the barriers to, and facilitators for, implementing best practices to reduce retained surgical items (RSI). Participants included practicing surgeons, circulating nurses, surgical technologists, anesthesiologists, and operating room leadership. The RSI identified as in scope for these discussions were intraoperative instruments, supplies, and sponges.

Over a series of convenings, the Task Force identified gaps in best practice implementation and developed a consensus opinion to help health system leaders in their efforts to reduce RSIs. These recommendations identify barriers to implementing the Association of Operating Room Nurses (AORN) evidence-based guidelines,<sup>1</sup> which were selected by the group to represent best practice.

An RSI is a sentinel patient safety event wherein surgical materials OR equipment are unintentionally left in a

patient's body following surgery.<sup>2</sup> RSIs may result in serious harm, including the need for subsequent surgery, infection, sepsis, prolonged hospitalizations, readmission, and death.<sup>3</sup> RSIs are one of the most frequent sentinel events reported by The Joint Commission; 97 were reported in 2021.<sup>4</sup> The Massachusetts Department of Public Health reported 189 RSI incidents over a five-year period; 42 of them in 2022 (Figure 1).

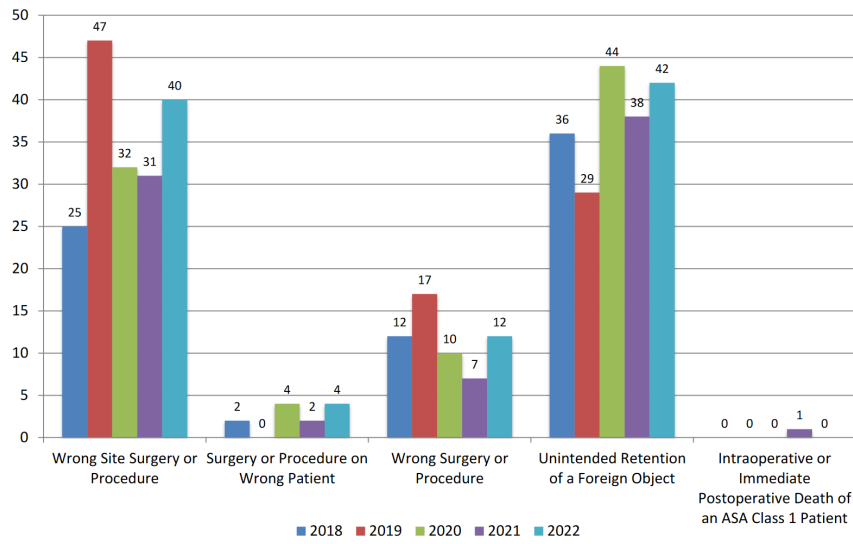
The Task Force convened by the AMC PSO reviewed RSI-related materials published by AORN, the Association of Surgical Technologist (AST), other professional organizations, and government agencies to identify the barriers to implementing these practices. This document reflects summarized identification of risks and mitigation strategies by Task Force to reduce RSI's including guidance for implementation of these practices to reduce the incidence of these sentinel events.

## Acute Care Hospital: Surgical Event SREs

**Key Findings**

For 2022, surgical events increased, approaching levels seen prior to 2020.

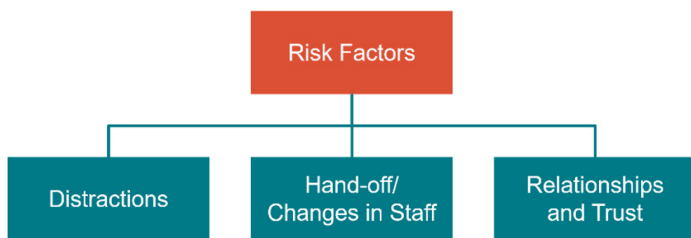
The most frequently reported outcome is that patients require an additional surgery or monitoring.



**FIGURE 1**  
Source: <https://www.mass.gov/doc/public-health-council-presentation-on-serious-reportable-events-in-calendar-year-2022/download>

Data abstracted March 1, 2023 from the Health Care Facility Reporting System

## Risk Mitigation Strategies to Address Potential Risk Factors



The AMC PSO convened a group of experts to explore what contributes to events OR near misses of RSI, as well as provide any widely used best practices. The task force evaluated current guidance and any barriers encountered to incorporating these recommendations into practice. Discussions revealed three main categories of risk related to RSI: distractions, hand offs, and relationships/trust. The group also provided many strategies OR best practices found to reduce risk in each of these areas.

## Risk: Distractions

The Task Force recognized that the OR can often be noisy with multiple environmental distractions and surgical nurses and technologists are often collaborating with multiple surgeons. The Task Force shared that risk increases in cases with more than one surgical site, OR staged procedures where the surgical team changes and counts must be completed before the next team starts. If RN circulators and staff members serving in a scrub role are interrupted during the count, this can increase risk for counting errors. Other environmental distractions may include noise, side conversations, usage of electronic devices, phone calls, patient charting, OR temperature, and people entering and leaving the room.

### *Mitigation Strategy*

The entire surgical team needs to be aware when the count is initiated. The Task Force recommend directly addressing the operating surgeon by name: “Dr. [Name], Are you ready for the count?” as an effective way to get the team to focus on this crucial step. This should be followed by announcing in the room to see if anything is needed before the count progresses. The Task Force further recommend—similarly to AORN—to not perform count during critical phases such as staff changeover, time-out periods, handling of specimens, critical dissections, OR during anesthesia induction OR emergence.<sup>1</sup>

The count process requires concentration to ensure accuracy and reduce error by minimizing distractions. An additional recommendation is creating a “No Interruption Zone” similar to the practice adopted for medication administration in other areas of hospitals to create a distraction free time and by pausing all the non-essential tasks to allow focus on the count (and restart a count if distraction occurs).

### CASE EXAMPLE

#### **Discrepancy in the Sponge Count**

A 60-year-old patient with a history of hypertension, hepatic liver disease, Fournier's gangrene, and diverticulitis was admitted for an elective exploratory laparotomy, extensive lysis of lesions, and re-anastomosis of the colon (from a prior surgery). Prior to closure of the skin, a discrepancy in the sponge count was identified by the surgical services staff (one less sponge than expected), and the surgeon was notified. The surgeon continued with wound closure. A full search of the OR was conducted per protocol, although the record is unclear if a thorough sweep of the cavity was conducted or if adjunct technology was used to locate the sponge. The surgeon was notified that the sponge was not found. An X-ray revealed that the sponge was in the patient's abdomen. The surgeon immediately re-opened the wound and retrieved the sponge. The wound was re-closed, and the patient recovered without further incident.

#### *Contributing Factors*

- Policy/Protocol not followed: the surgeon continued to close the wound despite the incorrect count, not waiting for the X-ray.
- Ineffective communication due to hierarchical issues:
  - The surgical services staff described the lead surgeon as appearing angry and intimidating, frequently swearing at staff
  - The surgical services staff shared that, after the surgery, the lead surgeon spoke to many staff members who had not participated in the surgery, asserting that the circulating nurse and surgical technologist had caused him to leave the sponge in, stating “It was their fault”

In addition to decreasing distractions, developing consistency in the method of counting is crucial. Using standardized count sheets for each department, clear handwriting, and standardized tracking for instruments that have been internalized and will require removal across ORs in an institution may also be helpful in reducing the incidence of RSI.

### Risk: Hand-off/Changes in Staff

Ensuring accuracy for a count that occurs proximate to a staff handover is important to reduce RSIs. Team turnovers/personnel changes during the surgery can contribute to count errors due to the loss of pertinent information during the hand-off. Team members rushing to finish due to shift changes may increase discrepancies. For lunch breaks etc., it was recommended that there is a warm hand-off between staff to allow for a detailed review of the items utilized during the break time for the primary staff responsible for the case.

#### *Mitigation Strategy*

Appreciate that each team member has a specific (and assigned) role, and that everyone must work together to ensure accuracy of counts. Clear delineation of responsibility for managing the surgical field, instruments, sponges, and equipment is paramount for reducing RSIs. The Task Force suggest adopting standardized and structured handoff practices to achieve situational awareness among all team members. Avoid rushed changeover of staff OR surgical team members to ensure that the departing individual/team has adequate time to convey the information and the incoming person/team has time to ask questions. In general, conducting a hand-off concurrent with the count is discouraged.<sup>5</sup>

In institutions with medical students, surgical residents, and other trainees, additional educational sessions and boot camps should be provided to familiarize them with the processes and relevant factors associated with the surgical counts.

### Risk: Relationships and Trust

Lack of trust and respect amongst team members can create situations where concerns, disagreements, and feelings are not expressed, which can contribute to counting errors. Tørring et al note that “The quality and efficiency of surgical procedures and patient safety are contingent on interdisciplinary collaboration and communication.”<sup>6</sup> Historically, hierarchical structures in the OR have led to team members being reluctant to voice their concerns. Surgical nurses and technologists with less experience may be reluctant to inform the team when the count is wrong OR may be worried about addressing concerns about deficiencies in the counts process.

#### *Mitigation Strategy*

Team communication is an integral part of the surgical counts process as the entire team shares responsibility for accuracy. This can be promoted by proper team structure with defined roles and closed-loop communication along with developing a keen sense of collective trust and respect. This can be achieved by:

- Empowering all staff to feel comfortable enough to say “stop,” to acknowledge that they are still counting
- Team training and simulation training to improve psychological safety
- Standardized pre-operative briefings and timeouts, and brief introductions to allow team members to address each other by name, can foster an environment where staff feel empowered to speak up

Additionally, surgical team members can undergo crew resource management (CRM) training that provides team-based approach to addressing a crisis. CRM encompasses eight teamwork behaviors: leadership, communication, anticipation and planning, resource utilization, workload distribution, situational awareness, triage and prioritization, and management of disruptions.<sup>7</sup> These simulations can improve interpersonal behaviors while increasing team cohesiveness.

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## What to Do in Case of a Count Discrepancy

The task force endorsed the decision tree provided in the AORN guidelines.<sup>1</sup> Salient points related to count discrepancies that came up during discussion include:

- In cases of count discrepancy, suspend wound closure (if allowed by the patient's condition). The entire surgical team should be alerted, and a recount should be performed. Conduct a thorough cavity search for the item(s). If unable to reconcile the count, thoroughly search the floor, garbage, and linen. If the item is found, then repeat, and verify the count.
- If the count remains unreconciled, then perform an intraoperative X-ray. If radio-frequency identification

sponges are used, then an adjunct technology wandung can determine the location of the missing sponge(s).

- Wandung technology, if available, should be considered for all cases, not just in response to a count discrepancy. This has the added benefit of maintaining competency among staff on how to use the wands. In any case there should be a standardized policy about the use of the wandung technology to supplement the primary counting processes.

Additionally, it was recommended by some task force members to include language in the institutional policy to file a report when missing item is not located after following all the reconciliation steps.

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## Conclusion

Despite available guidance to prevent retained surgical items, these events continue to occur and represent a safety concern for frontline clinicians, as well as safety leaders. The AMC PSO convened a Task Force of clinical experts to identify several risk categories and potential mitigation

strategies to address the concerns. Through experience of this Task Force a consensus-based recommendations were developed that may be incorporated into practice to help reduce the occurrence of RSIs.

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**CONTRIBUTORS**

- Carol Belle-King, CST**  
Brigham and Women's Hospital
- Charlotte L Guglielmi, MA, BSN, RN, CNOR, FAORN**  
Beth Israel Deaconess Medical Center
- Douglas S. Smink, MD, MPH**  
Brigham and Women's Faulkner Hospital

**CRICO MEDICAL WRITERS**

- Pat Folcarelli, RN, MA, PhD**  
Vice President of Patient Safety
- Yvonne Cheung, MD, MPH, MBA**  
Associate Medical Director,  
AMC PSO, CRICO-RMF
- Jennifer Clair MacCreedy, DNP, RN, AHCNS-BC**  
Senior Program Director, AMC PSO

**CRICO PROJECT STAFF**

- Shivani Sabhaya, MHA**  
Program Administrator, AMC-PSO
- Jock Hoffman**  
Senior Editor
- Katherine R. Zigmont, BSN, RN**  
Clinical Program Specialist
- Rohan Patel, MHA**  
Program Administrator, Grants & AMC PSO
- Wallinda Hutson, MSLIS**  
Sr. Information Resources Librarian
- Alison Anderson**  
Principal Art Designer

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For permissions and secure methods of communication to the AMC PSO, please contact: [amcpso@rmf.harvard.edu](mailto:amcpso@rmf.harvard.edu), 617.450.5586